# 5 Comments on data elements

This chapter brings together summary information on utility and importance of the NMDS data elements, comments and suggestions from both the utility and compliance evaluations and other comments obtained throughout the NMDS evaluation.

## Existing data elements

This section provides summary statistics for each individual data element obtained from the utility survey, as well as comments and recommendations for change from both the utility and compliance evaluations. The order of data elements in this section is according to how the data elements are presented in Tables 3.5 and 4.3.

### Establishment data elements

#### Establishment identifier

Eighty per cent of respondents who provided a rating for the importance of this data element rated it as either important (33%) or highly important (33%), and 74% rated it as either useful (38%) or highly useful (36%). Thirteen per cent did not think the data element was important and 14% not useful.

A number of state and territory data providers commented that this data element is generally irrelevant, as it is a concatenation of other data elements (Establishment number, Establishment sector, Region code and State identifier) and that the individual components as separate data elements are more important/useful than the concatenation. However, it was noted that the Region code component, given it is defined at state level rather than nationally, would not have much national meaning.

#### Establishment number

Seventy-four per cent of respondents who provided a rating for the importance of this data element rated it as either important (29%) or highly important (45%), and 63% rated it as either useful (30%) or highly useful (33%). Twenty-one per cent were unsure of the importance, and 25% the usefulness of this data element.

Unique establishment numbers can be used by the Institute to assess numbers of private hospitals contributing to data aggregates and therefore assist in maintenance of confidentiality for these hospitals. The Institute recommends that 'Establishment number' be reported in detail for private hospitals for all jurisdictions. The names of these establishments are not required.

New South Wales has indicated that although this is technically feasible, it would need to be cleared on privacy grounds, as it would still be possible to potentially

disclose confidential information. Victoria has indicated that if the recommendation to exclude 'Region code' is accepted, it would be prepared to provide an establishment identifier which includes a unique encrypted establishment number for private hospitals. The current arrangement of not providing an establishment number for private hospitals has been adopted mainly to protect the identity of certain large and dominant private hospitals in rural regions of Victoria.

Western Australia has indicated that it does not wish to provide the establishment number for private hospitals, however, in assigning new establishment numbers, will attempt to adhere to the NHDD definition. Tasmania has also indicated that it would not be able to comply with the NHDD specification for private hospitals.

### Establishment sector

Seventy-nine per cent of respondents who provided a rating for the importance of this data element rated it as either important (37%) or highly important (42%), and 66% rated it as either useful (39%) or highly useful (27%). Seven per cent did not think the data element was important and 20% not useful.

There were few comments relating to this data element. However it was noted that, as private and public care have the potential to differ, this element would be needed to examine that, and it is useful for costing and other analysis. This data element is used informally in data provision to differentiate between public psychiatric and other public hospitals, and between private freestanding day hospital facilities and other private hospitals. These differentiations would be included formally in this data element. Alternatively, it could be included in a separate 'hospital type' data element recognising that the 'sector' and 'type' of hospital are two different concepts. This could be based on the categories currently requested, and/or on the 'Establishment type' data element (which is currently under review).

Comments from the compliance survey suggested that the data domains for 'Establishment sector' be expanded to include 4 *Public psychiatric* and 5 *Private freestanding day hospital facility* and appropriate definitions developed for these domains, and possibly also for the residual 'public' category noting that not all hospitals currently in that group would be regarded as acute.

The Tasmanian Department of Health and Human Services has indicated that the situation regarding private hospitals in Tasmania will not be overcome, and is likely to affect other smaller states and territories. Therefore a data domain of 6 *Private, not further specified* may also need to be included.

The Australian Capital Territory has noted that the specifications for 'Establishment identifier' in the request for data sent to states and territories contradicts the definition given in the NHDD. The file specification requests 'Establishment type' (using a 4-value code set that does not match the 32 data domains for 'Establishment type' in the NHDD) as a component of 'Establishment identifier', while the NHDD says this component should be 'Establishment sector', which has only 2 data domains. This needs to be clarified in both places.

## Region code

Sixty-nine per cent of respondents who provided a rating for the importance of this data element rated it as either important (27%) or highly important (42%), and 65% rated it as either useful (30%) or highly useful (35%). Sixteen per cent did not think the data element was important and 21% not useful. Another 16% were unsure of its importance and 14% of its usefulness.

For the purposes of the NMDS, the data element is generally only collected as part of the composite data element 'Establishment identifier'. It was stated that 'Region code' is a misleading title, as it doesn't adequately describe the context of the data element. Some of the comments received in relation to this data element tended to confirm this in that users thought that these data might be useful for epidemiological studies and looking at geographic distribution of hospitalisations. Presumably if the data element was collected according to the definition which states that it is 'An identifier for location of health services in an area', it may be possible to use the data element for this purpose. However, domain values are as specified by individual states/territories, meaning that there is no national standard and it cannot be compared nationally. Several states and territories do not provide data for this element.

Queensland considers that this data element should be removed from the NMDS as it is not useable for national comparisons. Victoria has indicated that if 'Region code' were to be removed, it would be prepared to provide an establishment identifier which includes a unique encrypted establishment number for private hospitals. The current arrangement of not providing an establishment number for private hospitals has been adopted mainly to protect the identity of certain large and dominant private hospitals in rural regions of Victoria. Presumably this information would be more useful than having a 'Region code'. Tasmania has indicated that as all private hospital and freestanding day facility data are sent as one (that is, sector 6), it would prefer not to provide a valid region code for the private sector in future. The value of maintaining the data element 'Region code' needs to be assessed.

## State identifier

Ninety-three per cent of respondents who provided a rating for the importance of this data element rated it as either important (28%) or highly important (65%), and 91% rated it as either useful (44%) or highly useful (47%). Only 7% rated it as not important or not useful.

Generally this would be seen as an essential data element at the national level. At the state/territory level this data element is not as useful, as it would be usual for one state/territory to access another state/territory's NMDS, except in the context of cross-border charging agreements. In that context it is vital.

It was suggested that it needs to be clarified in the NHDD that this data element only relates to establishments, rather than to the patient's state of usual residence, which is provided for in the data element 'Area of usual residence'.

## Demographic data elements

### Area of usual residence

Ninety-three per cent of respondents who provided a rating for the importance of this data element rated it as either important (9%) or highly important (84%), and 93% rated it as either useful (19%) or highly useful (74%). Only 7% rated it as not important and 5% as not useful.

Comments relating to this data element stated its importance for epidemiology nationally and at the state/territory level, for reporting, for example, on hospital catchment areas, cross-border charging arrangements and epidemiology at a state/territory level. It was also stated that this data element could also be very useful for confirming the accuracy of linkage work (if all states and territories were to comply with the specified data domains). However, there were a number of concerns raised. One related to the issue of not being able to produce reliable time series information based on Statistical Local Areas (SLAs—the data domain for this data element). The other related to the need for clearly stated standards for unknown address, address not further defined, no fixed abode, overseas, Norfolk Island, incomplete address (for example, state known but not SLA). The ASGC includes codes for most of these circumstances. Country of usual residence was suggested as a useful additional data element.

Victoria has indicated that it may be necessary to adopt a standard timetable for incorporating changes to both the ASGC classification for SLAs and for postcodes. Victoria uses a probabilistic algorithm to map locality name and postcode to SLA and there are resource and timing constraints imposed by this process. At present there are time lags associated with both the publication of the ASGC by ABS (sometimes six months after it comes into effect) and updating the mapping.

The preference of the Institute would be to receive data for both SLAs and postcodes for all separations, as some analyses are better with postcodes and others with SLAs. Postcodes can be particularly useful for comparing hospitalisation data with data from other sources.

South Australia does not collect SLA data on non-resident patients, however, postcodes can be provided for all patients. Tasmania has indicated that postcode information can also be provided for all patients.

The Institute requests a category of 0 *Not applicable* to be used where the patient is resident overseas, is at sea or has no fixed address. However, this makes it impossible to assess the use of hospitals by overseas residents. The usefulness of a separate category for overseas residents should be assessed.

New South Wales and Western Australia are supportive of this suggestion and Victoria has indicated that it would have no difficulty in providing separate codes for patients resident overseas, at sea or with no fixed address. Similarly, Queensland indicates that for interstate and overseas separations it allocates default SLA codes denoting the individual state/territory or whether the patient's usual residence was overseas.

The Department of Health and Ageing also supports this suggestion as the Federal Government has reciprocal agreements with different countries, therefore the ability to identify a patient's country of usual residence would be useful.

## Country of birth

Eighty-four per cent of respondents who provided a rating for the importance of this data element rated it as either important (32%) or highly important (52%), and 85% rated it as either useful (41%) or highly useful (44%). Eleven per cent rated it as not important and 10% as not useful.

Although this data element was seen as important for studying the access to services by different sub-populations, it was believed that the quality might be compromised because patients may be reluctant to state their country of birth for fear they might receive different treatment. Another comment in relation to quality was the fact that countries change and where people were born may not be included in the current code set in the hospital. Despite this, this data element was seen as useful for confirming the accuracy of linkage between data sets.

It was commented that the Standard Australian Classification of Countries (SACC) be adopted by all jurisdictions as the domain value for collection of data on 'Country of birth'. Queensland and Western Australia have both indicated they agree with this. Queensland is now using SACC and Western Australia will report SACC for 2002–03.

One modification that was suggested was the need for clearly stated standards for the use of supplementary ABS codes where insufficient information is provided (for example, 'Africa', 'Northern Europe'). While ABS issues supplementary codes for the SACC, there are many variations on which ones can be adopted. The NHDD merely refers to the SACC standard, without providing clarification on which supplementary codes should be used for national reporting.

## Date of birth

Ninety-three per cent of respondents who provided a rating for the importance of this data element rated it as either important (15%) or highly important (78%), and 88% rated it as either useful (16%) or highly useful (72%). Only 4% rated it as not important and 5% as not useful.

Many comments related to the fact that age is the important derivative of this data element and is a more useful data element for analysis. However, 'Date of birth' is seen as a critical data element for any linkage project. It was also stated that this data element might occasionally be used for clinical self-audit. Western Australia does not provide this data element and notes that it will only provide it when data linkage need is ratified by a higher body.

One issue that was raised was that is not clear how to report an unknown date of birth, for example, if only day is known, month is known or year is known. There is no estimated date of birth flag to indicate which part of the date was estimated. It was noted that this is a particular issue for mental health patients.

**Indigenous status**

Ninety-one per cent of respondents who provided a rating for the importance of this data element rated it as either important (17%) or highly important (74%), and 86% rated it as either useful (30%) or highly useful (56%). Nine per cent rated it as not important and 12% as not useful.

Most respondents who commented on this data element thought it was very important, but raised concerns over its completeness and accuracy and lack of consistency across hospitals and states/territories. Although there have already been specific policies aimed at improving Indigenous identification, most agreed that the completeness of Indigenous status reporting needs improving and that further work on ensuring accuracy would be helpful. Suggestions for improving the accuracy included working jointly with the ABS to assess how the Indigenous status question can be better adapted to the hospital sector, and more education focused on the Indigenous population to encourage them to identify. It was thought that some Indigenous persons still decline to identify as Indigenous due to the belief they will get different treatment.

It was suggested that additional data domains for this data element could be 'Patient refused to respond' and 'Patient was not asked', which would currently be included under the 'Not stated' data domain. The Northern Territory supported the inclusion of 'Patient refused to respond', however, it is not supportive of the inclusion of 'Patient was not asked'. Comments from the Department of Health and Ageing indicate that it does not support the inclusion of these additional data domains. The Department believes that it is important to retain a standard question for Indigenous status across data collections and the ABS standard question currently in use is the most widely used and most appropriate for this purpose. It was suggested that rather than altering the Indigenous status data element in the NMDS, it would be more appropriate to use the additional domains in further evaluations of compliance.

The Institute has no information on whether Indigenous status is collected independently for each episode of care or if it is recorded only once and then replicated for repeat admissions. This issue should be investigated because, ideally, information should be collected at each admission.

**Sex**

Ninety-eight per cent of respondents who provided a rating for the importance of this data element rated it as either important (15%) or highly important (83%), and 95% rated it as either useful (19%) or highly useful (77%). Only 2% rated it as not important or not useful.

One respondent commented on this data element, querying whether sex or gender should be collected. If the former, it was thought that there should be some guidance for assigning patients following sex change, and consideration of the impact on ICD-10-AM coding.

Victoria has indicated that the statement in the NHDD that 'to avoid problems with edits, transsexuals undergoing a sex change operation should have their sex at time

of hospital admission recorded' is confusing and should be reviewed. There are several problems with this statement:

- It does not clarify the situation or address the edit problems because in practice a change of sex often requires at least two hospital admissions, one involving a procedure on the male reproductive system and the other involving a procedure on the female reproductive system (not necessarily in that order).

- If, in a single episode, both types of procedure were performed, there would be editing problems regardless of what sex has been recorded.

- This also applies to patients, usually children, of ambiguous sex where the whole problem is that 'their sex at time of hospital admission' is unclear.

- For legal reasons the most important piece of information for hospitals to record is the gender at admission. This is because, at least in some jurisdictions, sex change procedures may only be performed if it can be demonstrated that the gender at admission is in fact the same as the intended sex at 'final' discharge.

- The problem is not limited to procedure codes: a patient may be admitted for a diagnosis appropriate to their original gender (for example, a now-female patient admitted for treatment of a prostate problem).

- To compound this, a patient can, in a single episode, undergo treatment for diagnoses appropriate to both their previous and current gender.

Victoria has suggested that there would seem to be only two satisfactory ways to deal with this situation—either change the definition to acknowledge that the male/female distinction is not appropriate when the admission is for the purpose of a sex change, or accept that the edits will not work for such admissions. It should also be noted that Victoria has adopted a deliberate practice of not asking hospitals for clarification of these edit queries because they are considered to be intrusive and time-wasting when an 'explanatory' diagnosis is reported. From 1 July 2002, Victoria has revised input edits to permit a range of sex-specific procedures to be reported for the 'wrong' sex if there is one of a set of 'explanatory' diagnosis codes present. Attached (Appendix 3) is the specification of these two sets of edits. It is apparent that additional procedures need to be added to these lists. Additional work is required to deal with 'wrong' sex diagnosis codes.

The Northern Territory has suggested that the data element should be renamed to 'Current sex status'. It also noted that there should be some national guidance on this issue and the legalities, such as in future the role of Registrars of Births, Deaths and Marriages being expanded to include gender.

Another area that needs consideration is how the AR-DRG logic deals with such cases. Even when extensive surgery has been performed, the principal diagnosis, F64.0 *Transsexualism*, leads to the mental disorders MDC that comprises only medical DRGs.

## Length of stay data elements

### Admission date

Ninety-one per cent of respondents who provided a rating for the importance of this data element rated it as either important (13%) or highly important (78%), and 93% rated it as either useful (23%) or highly useful (70%). Nine per cent rated it as not important and 5% as not useful.

It was stated that this data element is useful for deriving length of stay, consolidating newborn records, and for record linkage and has the potential to be used in the calculation of re-admission rates. There were a few suggestions for improvement. It was suggested that admission date needs to be combined with admission time, so that two admissions on one day can be determined to be duplicates or not. For emergency admissions, there needs to be national standards for when a patient is admitted (for example, following a presentation to the emergency department), which will affect the admission date.

In the compliance evaluation there were no recommendations for change for this data element, but the addition of the data element 'Admission time' to the NMDS was suggested (see 'Admission time, Separation time and Leave in hours and minutes' on page 158). This has been proposed as an effective method of monitoring the use of the data element concepts 'Overnight stay patient' and 'Same-day patient' for reporting and to provide a useful validation tool for patients admitted subsequent to an emergency department presentation.

### Number of days of hospital in the home care

Sixty-nine per cent of respondents who provided a rating for the importance of this data element rated it as either important (45%) or highly important (24%), and 60% rated it as either useful (43%) or highly useful (18%). Five per cent did not think the data element was important and 18% not useful. Another 26% were unsure of its importance and 23% of its usefulness.

Generally comments related to the fact that this data element is not well recorded across jurisdictions, and that further work on consistency is needed. Comments indicated that there are no clear national guidelines defining what a hospital in the home program is and, without such definitions, there is no point collecting this data element nationally. In New South Wales it is unclear what the difference is between an early discharge program, and hospital in the home. It appears the program can be delivered for either admitted or non-admitted patients. One respondent suggested that hospital in the home could be a separate care type.

### Number of leave periods

Only 48% of respondents who provided a rating for the importance of this data element rated it as either important (34%) or highly important (14%), and 45% rated it as either useful (31%) or highly useful (14%). Thirty per cent did not think the data

element was important and 33% not useful. Another 23% were unsure of its importance and 21% of its usefulness.

The Australian Capital Territory commented that the definition needs to exclude leave periods where the patient was back in hospital before midnight on the day they left. At present it conflicts with total leave day and length of stay calculation methodologies. This is an issue that needs to be resolved.

South Australia and New South Wales both commented that they do not tend to use this data element (South Australia is unable to report it accurately) and there appears to be no demand for it as it is rarely, if ever, requested.

'Number of leave periods' was reported very poorly, and as there is little evidence that these data are necessary in the National Hospital Morbidity Database, the Institute will propose that this data element be deleted from the NMDS.

Queensland, Western Australia and South Australia would support the recommendation to delete 'Number of leave periods' from the NMDS. Western Australia indicated that it is unaware of the use of this item and South Australia cited questions over quality.

## Number of qualified days for newborns

Seventy per cent of respondents who provided a rating for the importance of this data element rated it as either important (34%) or highly important (36%), and 62% rated it as either useful (38%) or highly useful (24%). Nine per cent did not think the data element was important and 19% not useful. Another 20% were unsure of its importance and 19% of its usefulness.

There were a number of comments from respondents regarding this data element and the data element concept to which it relates, 'Newborn qualification status', indicating that both may need to be modified. It was noted that the whole concept needs to be better defined for consistency purposes, for example, does one day or over 50% of days constitute a qualified baby? It was suggested that this data element may need to be retained for private health insurance reasons and a new field created to accommodate the concept or alternatively the whole concept could be dropped.

Tasmania indicated that due to system limitations it is unable to capture this information, while the Northern Territory indicated that it is not relevant in the Territory as yet, since newborn episodes are separated based on whether it is an acute newborn or non-acute newborn. According to New South Wales, the counting rules that currently apply mean that qualified time is going uncounted. For example, if a newborn goes to a neonate special care nursery for 23 hours but is not admitted to that ward at midnight, the national rules would count this as an unqualified day. It was suggested that this rule seems more to support health insurance company funding rather than measuring actual time the patient is qualified. It is believed that collecting unqualified days/hours would be better as it is limited to 9 days, not infinite days as qualified days are. Another suggestion was that only admitting qualified babies would make more sense and could be more easily captured.

Another problem that was raised as an issue to be resolved was that this data element does not deal with leave days, while the definition of number of acute care days does.

It is recommended that 'Number of qualified days for newborns' only be reported for separations with a *Newborn* 'Care type' and null for the remaining separations as is the approach adopted by Queensland and Western Australia.

## Separation date

Ninety-six per cent of respondents who provided a rating for the importance of this data element rated it as either important (11%) or highly important (85%), and 93% rated it as either useful (16%) or highly useful (77%). Only 4% did not think the data element was important and 5% not useful.

Comments relating to this data element were generally positive. Issues relating to the importance of this data element for linkage projects and to derive data components such as financial year of separation, calendar year of separation and separation month were raised. It was suggested, however, that this data element needs to be combined with separation time, so that two separations on one day can be determined to be duplicates or not.

See also issues raised in relation to the data element concept 'Separation' regarding the limitations of separation-based counting for describing longer term care (page 156).

In the compliance evaluation there were no recommendations for change for this data element, but a data element for the time of separation was suggested for inclusion in the NMDS (see 'Admission time, Separation time and Leave in hours and minutes' on page 158).

## Total leave days

Seventy per cent of respondents who provided a rating for the importance of this data element rated it as either important (41%) or highly important (30%), and 62% rated it as either useful (40%) or highly useful (21%). Eleven per cent did not think the data element was important and 21% not useful. Another 18% were unsure of its importance and 17% of its usefulness.

There appeared to be general agreement that this data element is required for the calculation of patient days/length of stay and associated measures such as average length of stay, but isn't generally used as a data element in its own right. There was a suggestion that this could be a supporting data element (concept).

The Australian Capital Territory commented that the definition needs to exclude leave periods where the patient was back in hospital before midnight on the day they left. At present it conflicts with total leave day and length of stay calculation methodologies. This is an issue which needs to be resolved. It is recommended that this data element be changed to total leave hours (see 'Admission time, Separation time and Leave in hours and minutes' on page 158). Western Australia agreed with

the idea but noted that there will be an issue in the hospitals regarding the time in hours because the calculation is not currently automated.

The Department of Health and Ageing commented that it supports the recommendation to change this data element to total leave hours as long as 'Admission date' and 'Separation date' also change accordingly. The Department has indicated that this should be trialed prior to implementation.

### Total psychiatric care days

Seventy-two per cent of respondents who provided a rating for the importance of this data element rated it as either important (40%) or highly important (33%), and 66% rated it as either useful (41%) or highly useful (24%). Seven per cent did not think the data element was important and 12% not useful. Another 21% were unsure of its importance and 22% of its usefulness.

It has been suggested that a separate 'Care type' should be introduced for patients admitted to designated psychiatric wards (see data element 'Care type' on page 137). The Northern Territory and Western Australia are supportive of this suggestion if reported correctly. It would be unnecessary to retain this data element if such a care type was to be introduced, as the length of stay of the psychiatric episodes of care could be easily calculated. This data element will need to be reviewed further along with 'Care type'.

The definition of psychiatric care should also be reviewed to determine whether it is based upon care in a designated psychiatric unit or care provided by staff of a specialised psychiatric service or both.

It is recommended that psychiatric care days should only be reported for separations with psychiatric care and left null for separations with no specialised psychiatric care as is the approach taken by Queensland, Western Australia and the Australian Capital Territory. In effect this is a recommendation for deleting this data element from the NMDS for Admitted patient care while retaining it in the Admitted Patient Mental Health Care NMDS.

It is also recommended that this data element be changed to hours of psychiatric care, as numbers of days (or even part days) is not accurate enough when most separations are 1–2 days long. It is possible for patients to only remain in a psychiatric unit for a few hours, however, this would be reported as a whole psychiatric care day under the current definition (see 'Admission time, Separation time and Leave in hours and minutes' on page 158).

It appears that a number of states and territories would be reluctant to implement this change at this time. Queensland has indicated that changing to hours of care could only be considered if admission time and separation time were also included as part of the NMDS. However, Queensland Health does not support the collection of admission and separation times as NMDS items at present. Western Australia has indicated that implementation of 'Hours of psychiatric care' would be quite difficult, as the computations are currently done manually at a number of hospitals. Tasmania

has noted that this would be a significant change which would require a business case to properly assess the implications for all jurisdictions.

## Clinical and related data elements

### Activity when injured

Eighty-one per cent of respondents who provided a rating for the importance of this data element rated it as either important (44%) or highly important (37%), and 73% rated it as either useful (38%) or highly useful (35%). Seven per cent did not think the data element was important and 13% not useful. Another 12% were unsure of its importance and 15% of its usefulness.

It was suggested that although this data element is not useful as an NMDS item for general reporting it is obviously important for specific purposes. Concerns surrounding this data element generally related to the unreliability of coding and under-reporting. It is believed that this data element would be very useful if it was reliable/complete. It was noted that the specificity has improved compared with previous years.

There have been significant changes to the activity codes in ICD-10-AM, third edition. The data domain specified in versions 10 and 11 of the NHDD are no longer in line with these changes. Therefore, the domain values for 'Activity when injured' specified in the NHDD should either be removed or updated in line with each edition of ICD-10-AM.

Queensland indicated that it agrees with the recommendation to update these in line with ICD-10-AM.

### Additional diagnosis

Ninety-five per cent of respondents who provided a rating for the importance of this data element rated it as either important (18%) or highly important (77%), and 93% rated it as either useful (24%) or highly useful (68%). Only 5% did not think the data element was important and/or not useful. Another 2% were unsure of its usefulness.

The importance of this data element is recognised for DRG assignment and for studying the prevalence of conditions. It was noted that it is highly relevant to monitoring asthma, as there is often diagnostic confusion with other conditions such as chronic obstructive pulmonary disease. It was noted, however, that it is unclear whether additional diagnoses are historical non-current conditions, secondary admission diagnoses, pre-existing and current co-morbidities, or complications of treatment. This distinction is important for epidemiological analysis. It was suggested that the usefulness of this data element could be improved if additional diagnoses were in order of importance for the episode of care; this suggestion was supported by the Northern Territory. One respondent commented that the coding of this data element is unreliable.

It was stated that an unlimited number of diagnosis codes should be able to be collected in hospital morbidity systems.

It appears that some states and territories may have been restricted in the number of diagnosis codes they could provide as the Institute requested a maximum of 31. Therefore, in future the Institute may request a larger number of diagnosis codes (maximum of 50). Although Queensland can support the provision of up to 50 condition codes for each episode, if required, it has questioned if this is worthwhile, given that:

(a) not all jurisdictions can provide the number requested presently; and

(b) only a very small proportion of episodes would have more than 30 condition codes.

Western Australia commented that it collects unlimited diagnosis codes so the provision of up to 31 is within capacity. Western Australia has suggested that should a greater number of codes be requested, a different submission format may be more appropriate, to minimise the size of data files.

As some states and territories are already collecting morphology of neoplasm codes as part of their morbidity collection, the Institute invited states and territories to include these as optional codes (in addition to additional diagnosis codes) in the National Hospital Morbidity Database for the 2001–02 collection period. The inclusion of these codes may enable an indication of severity of blood and haematopoietic neoplasms, for example, for development of AR-DRGs. A new data element, 'Morphology of cancer', has been introduced in version 11 of the NHDD specifically for use by cancer registries. It may be possible to modify this data element and include it as part of the NMDS for Admitted Patient Care.

Queensland and Western Australia both indicated that they do currently collect morphology of neoplasm codes. Tasmania indicated that it can only provide morphology codes as part of the string of additional diagnosis codes. Therefore it would be unable to comply with the recommendation for change to report morphology codes as a separate data element.

**Care type**

Ninety-one per cent of respondents who provided a rating for the importance of this data element rated it as either important (25%) or highly important (66%), and 80% rated it as either useful (27%) or highly useful (54%). Five per cent did not think the data element was important and 15% not useful. Another 5% were unsure of its importance and/or its usefulness.

There were a number of comments in regard to this data element indicating it requires further review. This data element is seen as very important as it describes the actual phases of treatment, which serve to divide hospital stays into episodes of care, the counting units of the NMDS. It was noted that the data element is difficult to apply and poorly utilised, resulting from the fact it is multi-dimensional (it is measuring two different concepts) as well as being incompletely specified. One respondent indicated that hospitals are still encountering problems as to when to

close and re-open an episode of care for a patient. It is believed that the definition of 'Care type' needs to be refined and that this is one of the areas of the NMDS that requires a complete rethink and careful examination of the theory and application. It is believed that even though data for this data element have now been collected for several years we are still not close to having consistent data across jurisdictions.

An example of the inconsistency in the use of care types given by one respondent was for palliative care. Only three states use the optional codes for palliative care (3.1, 3.2 and 3.3), which give more detailed information about whether the palliative care episode occurred in a designated unit, according to a designated program, or where palliative care is the principal clinical intent. It would provide more meaningful and descriptive information if all the states used these optional codes, rather than reporting the general code 3.0 (palliative care—not further specified). Also, Victoria reported that it does not allow the use of code 3.3 (palliative care is the principal clinical intent) in public hospitals, as hospitals can only be funded for palliative care if they have a designated program or unit. Therefore, in some cases palliative care may be delivered in some Victorian hospitals as 'principal clinical intent', but would not be reported. It is uncertain whether this practice extends to other states. This is an example where funding issues drive the reporting of data, as opposed to what may actually happen 'on the ground'.

One respondent commented that most patient administration systems do not support the admission of a dead person, and thus can not report the 'Care type' Organ procurement—posthumous (see discussion on page 154). A number of jurisdictions are also unable to comply with the national definition for the Newborn 'Care type'. There are also concerns in Western Australia with the use of the Psychogeriatric care type.

Respondents suggested a number of new data domains including intensive care, transitional care, convalescent care and acute psychiatric care and that the newborn care type should be modified in line with AIHW and Department of Health and Ageing practices, that is, have greater detail in the data domain: 7.1 qualified newborn; 7.2 qualified newborn (some days qualified, some days unqualified); 7.3 unqualified newborn (all days unqualified). As noted elsewhere in this report there are already problems with jurisdictions calculating qualified days, which may affect the usefulness of these suggested data domains. However, splitting newborn episodes into these three categories can only be derived on separation and can not be selected on admission.

The limitations of this data element for psychiatric care have been noted, particularly the fact that the different intensity of a designated psychiatric unit, as against a general medical/surgical bed cannot be separated. For mental health there is a need to be able to identify the type of care being provided, across the spectrum from intensive through acute to rehabilitation and extended care and also forensic. It has been suggested that the potential extension of this data element for capturing within-separation changes in intensity should be investigated together with rules about the changes between types that generate different episodes.

Another suggestion has been to replace this data element with two new data elements, one covering clinical intent and the other the type of service, as it is believed that decisions about 'Care type' confuse these two quite separate criteria. These are emphasised in the definition and guide for use below.

Definition: The care type defines the *overall nature of a clinical service* provided to an admitted patient during an episode of care (admitted care), or the *type of service* provided by the hospital for boarders or posthumous organ procurement (other care).

Guide for use: … Classification depends on the *principal clinical intent* of the care received.

For the *Acute care* data domain, only principal clinical intent is specified while for the majority of the remaining codes, examples are given for each of the clinical intent and type of service criteria. This leads to considerable confusion in, for example, the case of an acute psychogeriatric unit—episodes of care provided in such units may be equally coded as *Psychogeriatric care* or *Acute care*.

The following have been suggested as advantages for replacing 'Care type' with the two suggested data elements:

- It would allow options for introducing the service type classification that has been effectively implemented within the National Survey of Mental Health Services since 1994. This distinguishes services on the basis of main program type (acute, rehabilitation and extended care) and target population (general adult, aged, child and adolescent, forensic). The lack of capacity within the existing NMDS to accommodate such distinctions has been identified as a significant obstacle to the full 'mainstreaming' of mental health collections.

- It would allow scope for a fuller elaboration of the concept of clinical intent. For example, there could be value in distinguishing intensive psychiatric care as a subcategory of 'acute'.

It seems apparent by the range of issues raised by respondents that further review of this data element is required, perhaps by a panel of clinicians (for example, the Clinical Casemix Committee of Australia). It also seems that more guidance in the use of the data domains is required. The Australian Capital Territory is currently reviewing the use of care types in its hospitals, and it will be useful to see its recommendations for modification and improvement.

The Department of Health and Ageing has also recommended additional care types relating specifically to older people.

The Institute requested that category 11.0 *Unknown* be reported if 'Care type' was not known. It is suggested that this category be included in the data domain for this data element. There was mixed support for this recommendation.


**Diagnosis Related Group**

Eighty-nine per cent of respondents who provided a rating for the importance of this data element rated it as either important (18%) or highly important (71%), and 83% rated it as either useful (21%) or highly useful (62%). Only 4% did not think the data

element was important and 7% not useful. Another 7% were unsure of its importance and 10% of its usefulness.

The usefulness of this data element for economic analysis and for comparing length of stay and resource use between groups was recognised. However, as this data element is derived and can be easily determined from other data elements in the NMDS there was uncertainty as to why this is required as an NMDS item. States and territories agreed that it is important that this is retained as it a method of highlighting differences in calculations, data issues and DRG grouper version used. Issues regarding timeliness were noted by a few jurisdictions. One commented that the DRG is using backward mapping every other year because of delays in releasing the Grouper logic to batch grouper product vendors. It was suggested that the usefulness would be improved if this timetable issue could be addressed. The NHDD states that the data domain for this data element is the 'version effective from 1 July each year'. This statement should be clarified. Another commented that if any jurisdiction has difficulty keeping up with ICD-10-AM editions, it should not be forced by the NMDS. It was also suggested that national level DRG data should be back-mapped to the latest version used by all, and that there are serious costing issues on the horizon due to the unavailability of national service weights updates.

## External cause—admitted patient

Eighty-four per cent of respondents who provided a rating for the importance of this data element rated it as either important (23%) or highly important (61%), and 80% rated it as either useful (29%) or highly useful (51%). Only 9% did not think the data element was important and 10% not useful. Another 7% were unsure of its importance and 10% of its usefulness.

It was suggested that although this data element is not useful as an NMDS item for general reporting it is obviously important for specific purposes. Concerns surrounding this data element related to unreliability of coding and under-reporting, particularly of domestic violence and other assault-related causes. Similarly, there is interest in being able to use this data element for identifying adverse events in hospitals.

External causes are reported in a variety of ways, with each jurisdiction reporting a varied number of external causes. For jurisdictions that report only a small number of external causes, it is likely that information is being lost (for example, adverse events may not be captured for patients admitted following a car accident). External cause information linked to the diagnosis to which it relates is provided to limited degrees by states and territories (as discussed above), making the interpretation of which conditions were attributed to the external causes difficult. This linking can be particularly useful for the analysis of external causes and injury surveillance and other monitoring.

Victoria has recommended that the NHDD rule that an external cause code should be sequenced following the related injury or poisoning code or group of codes should be reviewed with a view to restricting it to acute episodes.

A long-term goal could be that all information that relates to a condition (one or more diagnosis codes, morphology codes, external cause codes, place and activity codes) should be able to be stored and reported in a linked fashion, so the data remain interpretable. As most of these data are not in a linked format at present, the data can be very difficult to interpret, particularly at the aggregate level.

### Infant weight, neonate, stillborn

Eighty-two per cent of respondents who provided a rating for the importance of this data element rated it as either important (25%) or highly important (57%), and 69% rated it as either useful (21%) or highly useful (49%). Seven per cent did not think the data element was important and 15% not useful. Another 11% were unsure of its importance and 15% of its usefulness.

Generally comments were in relation to the scope of this data element. It needs to be clarified as to whether this data element should be collected for newborns aged 28 days or less or weighing less than 2,500 grams or for all infants aged less than 365 days. Currently these data are not collected routinely for all states/territories for all infants aged less than 365 days and it is believed the quality for infants between the ages of 28 and 365 days is questionable. The clinical relevance of collecting infant weight for infants greater than 28 days needs to be ascertained. Similarly data on weight for the Perinatal NMDS is only collected for neonates aged less than 29 days. The Department of Health and Ageing suggested that this data element be retained for infants weighing less than 2,500 grams.

It is believed that this data element is rarely requested in its own right, however, it is essential for grouping to DRGs for neonates.

### Major Diagnostic Category

Eighty-two per cent of respondents who provided a rating for the importance of this data element rated it as either important (32%) or highly important (50%), and 80% rated it as either useful (34%) or highly useful (46%). Seven per cent did not think the data element was important and 5% not useful. Another 11% were unsure of its importance and 15% of its usefulness.

Generally it was believed that this data element is not particularly useful as an NMDS item as it can be derived from Diagnosis Related Groups. It was suggested that the only reason this data element may be useful is for identifying the MDC for those cases that are assigned to a pre-MDC DRG. Some jurisdictions are no longer using MDCs, instead using Service Related Groups as a higher level grouping of DRG. States and territories agreed that it is important that this data element be retained as it a method of highlighting differences in calculations, data issues and groupers used.

### Place of occurrence of external cause of injury

Seventy-nine per cent of respondents who provided a rating for the importance of this data element rated it as either important (33%) or highly important (45%), and

72% rated it as either useful (36%) or highly useful (36%). Fourteen per cent did not think the data element was important and 15% not useful. Another 7% were unsure of its importance and 13% of its usefulness.

It was suggested that although this data element is not useful as an NMDS item for general reporting it is obviously important for specific purposes. Concerns surrounding this data element generally related to the unreliability of coding and under-reporting. It is believed that this data element would be very useful if it was reliable/complete. The National Occupational Health and Safety Commission uses the data element to study the aetiology of occupational injury and disease. It has suggested that this data element could be modified to identify forest and logging areas, which have very high work-related injury and fatality rates.

There have been significant changes to the place of occurrence codes in ICD-10-AM, third edition. The data domains specified in versions 10 and 11 of the NHDD are no longer in line with these changes. Therefore, the domain values for 'Place of occurrence of external cause of injury' specified in the NHDD should either be removed or updated in line with each edition of ICD-10-AM.

Queensland indicated that it agrees with the recommendation to update these in line with the ICD-10-AM.

## Principal diagnosis

All respondents who provided a rating for the importance of this data element rated it as either important (9%) or highly important (91%). Similarly, all rated it as either useful (18%) or highly useful (83%).

This data element is extremely important and requested often, however, it was noted that multiple diagnoses contribute to admissions. It was also suggested that the accuracy of coding is sometimes unclear, for example, there have been no cases of diphtheria since 1993 but over 20 hospitalisations recorded for it.

## Procedure

Ninety-eight per cent of respondents who provided a rating for the importance of this data element rated it as either important (14%) or highly important (84%), and 93% rated it as either useful (20%) or highly useful (73%). Only 2% did not think the data element was important and 5% not useful. Another 2% were unsure of its usefulness.

It was noted that this data element is extremely important and requested often, however, a number of respondents indicated that the usefulness of this data element is limited for particular conditions, for example, asthma and mental health diagnoses. It was suggested that the types of procedures relevant to asthma care are less likely to be recorded, for example, spirometry. It was also noted that there is broad recognition of the lack of utility of the current procedure coding system for admitted patient mental health care. From the national perspective, there has been little attention given to date to develop an alternative set of procedure codes that are appropriate to admitted patient mental health care, and it was suggested that an

appropriate set of procedure codes should be developed. To ensure data continuity, the Department of Health and Ageing does not support the development of an 'alternative' set of codes.

Queensland has indicated that there are several issues relating to procedures that need resolution, such as procedures performed for non-admitted patients who are subsequently admitted also being recorded against the episode of care.

It appears that some states and territories may have been restricted in the number of procedure codes they could provide as the Institute requested a maximum of 31. Therefore, in future the Institute may request a larger number of procedure codes (maximum of 50).

Although Queensland can support the provision of up to 50 procedure codes for each episode, if required, it has questioned if this is worthwhile, given that:

(a)  not all jurisdictions can provide the number requested presently; and

(b)  only a very small proportion of episodes would have more than 30 procedure codes.

Western Australia commented that it collects unlimited procedure codes so the provision of up to 31 is within capacity. Western Australia has suggested that should a greater number of codes be requested, a different submission format may be more appropriate, to minimise the size of data files.

## Administrative data elements

### Admitted patient election status

Only 67% of respondents who provided a rating for the importance of this data element rated it as either important (29%) or highly important (38%), and 63% rated it as either useful (25%) or highly useful (38%). Twenty-one per cent did not think the data element was important and 20% not useful. Another 12% were unsure of its importance and 18% of its usefulness.

One respondent commented that the guide for use—'To be collected at time of separation' is a little confusing given that it goes on to say a patient must elect 'at the time of, or as soon as practicable after admission'. It was suggested that maybe it should be changed to 'to be collected before separation'. It has been noted that the correct way of reporting this data element is not clear so there is a need to clarify the definition in the NHDD.

The Institute requested that category 9 *Unknown* be reported if the 'Admitted patient election status' of the patient was not known. It is proposed that this category be included in the data domain for this data element. Clarification would be required that this category does not include Reciprocal health care agreements patients (see 'Funding source for hospital patient' below) (as they should be *Public*) and patients who are not Medicare eligible but are not charged (at the discretion of the hospital) (as they should be *Private*).

Queensland indicated that it would agree with this recommendation. However, the Department of Health and Ageing does not support this recommendation, as all hospitals should know how the patient was billed.

Victoria has also recommended that the scope of this data item should be clarified with a view to placing public psychiatric hospitals outside its scope; alternatively, it could default to 'public' for this type of hospital.

In Western Australia 'Funding source' is used to derive values for this data element. Therefore it has recommended that explicit notes in the NHDD are needed on how 'Funding source' relates to this field.

### Funding source for hospital patient

Eighty-three per cent of respondents who provided a rating for the importance of this data element rated it as either important (36%) or highly important (48%), and 73% rated it as either useful (30%) or highly useful (43%). Ten per cent did not think the data element was important and 15% not useful. Another 7% were unsure of its importance and 13% of its usefulness.

A number of comments from respondents indicate that the data element may need to be modified. It has been noted that the correct way of reporting this data element is not clear so there is a need to clarify the definition in the NHDD. It was suggested that the data element is poorly defined and further thought needs to be given to the data domain. Apparently hospital staff find it hard to understand and difficult to work with. It was also suggested that unqualified newborns do not fit well anywhere and a separate code for them would help to eliminate them from any analysis which relies on this variable. One respondent noted that as only the expected principal source of funds is collected, information might be lost regarding other sources of funding for the episode. An apparent inconsistency was also pointed out in the guide for use (where there are comments both that the major source of funding and the final payment class should be recorded).

### Hospital insurance status

Seventy-six per cent of respondents who provided a rating for the importance of this data element rated it as either important (40%) or highly important (36%), and 75% rated it as either useful (38%) or highly useful (38%). Ten per cent did not think the data element was important and 15% not useful. Another 14% were unsure of its importance and 10% of its usefulness.

It was suggested that this data element would be very useful if it were collected properly. Although the definition is very clear, it is believed that hospitals are not really interested in collecting it properly because it serves no purpose for them. It was noted that this might be collected more effectively in surveys. This data element could still be retained regardless of the addition of 'funding source for hospital patient' in version 10 of the NHDD as it indicates whether patients had insurance (and used/didn't use it). Another comment noted that the data element only captures the patient's 'reported' hospital insurance status, so perhaps should be

named accordingly. It has been noted also that data quality is likely to be good only for private patients.

Victoria has recommended that the applicability of this item for public psychiatric hospital patients needs to be clarified in the NHDD definition.

### Intended length of hospital stay

Only 53% of respondents who provided a rating for the importance of this data element rated it as either important (35%) or highly important (19%), and 49% rated it as either useful (29%) or highly useful (20%). Twenty-eight per cent did not think the data element was important and 32% not useful. Another 19% were unsure of its importance and 20% of its usefulness.

A number of respondents commented that this data element is rarely requested or analysed, as there is a far greater interest in the actual length of stay. It is also no longer used for grouping to Diagnosis Related Groups. There were also questions raised over the quality of data for this element. The Department of Health and Ageing has indicated that this data element should be retained as it is likely to provide a useful measure of hospital efficiency.

However, this data element is seen as useful for reporting data for admitted patient mental health care and it has been suggested that 'all future reporting of same-day patients derived from the NMDS for Admitted Patient Mental Health Care routinely distinguish the "intended same-day" from "other" same-day categories'. In addition, clarification should be made that only procedural same-day patients are to be counted within the Admitted Patient Mental Health Care NMDS. As a corollary, all non-procedural, intended same-day patients would be counted within the scope of the Community Mental Health Care NMDS. These are issues that could probably be dealt with during data analysis.

### Inter-hospital contracted patient

Only 61% of respondents who provided a rating for the importance of this data element rated it as either important (44%) or highly important (17%), and 53% rated it as either useful (37%) or highly useful (16%). Twenty per cent did not think the data element was important and 18% not useful. Another 20% were unsure of its importance and 29% of its usefulness.

A few respondents indicated that the data collected for this data element are of varied quality. Apparently hospitals are having difficulty in providing accurate information. It was also noted that many of these patients have just one admission— so it is not always possible for both hospitals to record the patient's episode, just the hospital that admitted them. These episodes may be able to be identified using the 'Funding source' data element. One respondent suggested that contracted care should be identified as a separate care type.

As inter-hospital contracted patients are admitted patients of both the contracting and contracted hospital, these separations can represent double counting of hospital activity in the National Hospital Morbidity Database. It is important to understand

the extent to which double counting occurs for contracted patients, therefore, the reporting and quality of this data element should be improved. Queensland suggested that companion data items such as contract role and contract procedure flag can be used to identify the hospital performing the procedure, the hospital purchasing the hospital care as well as procedures that have been performed under the contract.

The label for category 3 *Other* should be amended to *Not contracted*.

## Medicare eligibility status

Seventy-nine per cent of respondents who provided a rating for the importance of this data element rated it as either important (40%) or highly important (38%), and 74% rated it as either useful (41%) or highly useful (33%). Ten per cent did not think the data element was important and 13% not useful. Another 12% were unsure of its importance and 13% of its usefulness.

It was suggested by one respondent that as the definition seems to leave very few people out of category 1, the usefulness of this element is questionable. Both Queensland and the Department of Health and Ageing noted that this data element is useful as it is important to have the capacity to separately identify Medicare-eligible and -ineligible patients. It appears to have similar issues to hospital insurance status, where the hospital (particularly private hospitals) would be more interested in funding source and may not bother to collect this element properly. It may need to be clarified whether the status should relate to the episode, or to the status of the person more generally.

Victoria has recommended that the applicability of this item for public psychiatric hospital patients needs to be clarified in the NHDD definition.

## Mental health legal status

Seventy-one per cent of respondents who provided a rating for the importance of this data element rated it as either important (50%) or highly important (21%), and 62% rated it as either useful (41%) or highly useful (21%). Twelve per cent did not think the data element was important and 15% not useful. Another 17% were unsure of its importance and 23% of its usefulness.

It was noted that as this data element is used for grouping (to DRGs) it is essential that it be maintained. However, it is believed that this data element has been too narrowly defined in the NMDS for Admitted Patient Care and should be reviewed to ensure that its use in this NMDS does not prevent its application in ambulatory care services. It was also suggested that the use of data domain 3 *Not permitted to be reported under legislative arrangements in the jurisdiction* by states and territories should be assessed and that it may be useful to include a data domain for 'unknown'.

Victoria has indicated that the scope of this data item needs to be more clearly defined. It is recommended that 'Mental health legal status' only be reported for separations receiving care in a designated psychiatric unit (that is, those which have psychiatric care days reported and null for the remaining separations as is the

approach adopted by Victoria, Queensland, Western Australia and the Australian Capital Territory).

The Institute requested that category 9 *Unknown* be reported if 'Mental health legal status' was not known. This category could be included in the data domain for this data element. This category could be used for reporting when patients undergo specialised psychiatric care, but the mental health legal status is unknown. An additional category *Not applicable* could be included for reporting where patients do not undergo specialised psychiatric care and therefore mental health legal status is not applicable. In effect this is a recommendation for deleting this data element from the NMDS for Admitted Patient Care while retaining it in the Admitted Patient Mental Health Care NMDS.

Queensland has indicated that it does not agree to having an additional category of 'Not applicable' included in the mental health legal status item for reporting patients not undergoing specialised psychiatric care. Queensland has suggested that it is inappropriate to have a category within a data item simply for the purpose of recording information on episodes that do not fall within the scope of the item and is also inconsistent with the recommended practice used for other data items for which all episodes are not in scope (for example, Total psychiatric care days).

## Mode of admission

Eighty-six per cent of respondents who provided a rating for the importance of this data element rated it as either important (40%) or highly important (47%), and 73% rated it as either useful (45%) or highly useful (28%). Seven per cent did not think the data element was important and 15% not useful. Another 7% were unsure of its importance and 13% of its usefulness.

There were a large number of comments relating to the need to revise this data element, as it is not believed to be useful in its current format and the data domains are too limited. At present the data domain with the highest frequency count is *Other*.

Respondents thought it would be useful to know about transitions and substitutions between services, re-admissions, and planned versus unplanned admissions. Also, respondents thought the data element could be made much more useful by enabling the separate identification of admissions, for example, from hospital emergency departments, booking offices, elective surgery waiting lists, general practitioner offices and residential aged care facilities.

It was suggested that this data element probably needs to be replaced by several data elements to identify the place the patient came from, who referred them and the point of admission into hospital. Queensland is supportive of this development and if agreed upon then the 'Source of referral to public psychiatric hospitals' item should also be revised.

One respondent commented on the lack of consistency in terminology and suggested that the data domain *Statistical admission—episode type change* should be changed to *Statistical admission—care type change* in line with the change to the use of 'Care type' rather than 'Episode type'.

The Institute requested that category 9 *Unknown* be reported if 'Mode of admission' was not known. This category could be included in the data domain for this data element.

Queensland has indicated that it does not support this. If an *Unknown* category was to be included for this item then the guide for use for the *Other* category will have to be modified as it currently includes all planned and unplanned admissions to hospital (excluding hospital transfers and statistical admissions).

## Mode of separation

Eighty-nine per cent of respondents who provided a rating for the importance of this data element rated it as either important (25%) or highly important (64%), and 85% rated it as either useful (33%) or highly useful (53%). Five per cent did not think the data element was important and 8% not useful. Another 7% were unsure of its importance and 8% of its usefulness.

A number of comments were received indicating that this data element may need modification to improve its usefulness. It was noted by one respondent that it is not clear how well this data item is being collected, particularly the distinction between discharged to residential aged care facility and discharged to usual place of residence. Further work may be required to ensure accuracy of collected data and possible consideration of making a distinct category of 'Discharged to usual residence' as the first option. Another respondent commented that Mode of separation does not currently include to the data domain 'non-acute' hospital. Presumably a discharge/transfer to a non-acute hospital would be coded as 4, *Other health care facility*, which does not allow for any differentiation between the type of 'other' healthcare facility to which the patient is discharged/transferred to. It is also unclear how discharges to multi-purpose services should be treated. It was suggested by another respondent that to improve the admitted patient collection to facilitate integrated care development, inconsistencies between the data element 'Mode of separation' in this NMDS and 'Referral to further care (psychiatric patients)' in the Admitted Patient Mental Health Care NMDS need to be addressed. It was suggested that it would be useful to develop a common code set that maps to either of the NMDS data elements (as has been developed in New South Wales). Another respondent commented that they want to know more about transitions between services, re-admissions, and substitutions between services.

One respondent commented on the lack of consistency in terminology and suggested that the data domain *Statistical discharge—type change* should be changed to *Statistical discharge—care type change* in line with the change to the use of 'Care type' rather than 'Episode type'.

The Institute requested that category 0 *Unknown* be reported if 'Mode of separation' was not known. This category could be included in the data domain for this data element.

Queensland indicated that it does not support this. If an *Unknown* category was to be included for this item then the guides for use for the *Other* category will have to be

modified as it currently includes all mode of separations not outlined in the previous mode of separation categories.

Western Australia commented that NHDD definitions are ambiguous for this data element, especially in relation to establishment types.

Further review of this data element could be useful given the variation in use and interpretation of particular data domains among states and territories.

### Person identifier

Eighty-six per cent of respondents who provided a rating for the importance of this data element rated it as either important (25%) or highly important (61%), and 83% rated it as either useful (37%) or highly useful (46%). Seven per cent did not think the data element was important and/or useful. Another 7% were unsure of its importance and 10% of its usefulness.

A number of respondents commented on the need for the person identifiers to be transferable across hospitals (not just unique within a hospital) and to be able to track repeat hospitalisations. It is believed that this data element could be potentially very useful for linkage to determine actual length of stay over the whole period of the hospital stay, not just for the episode of care, and for more accurately determining population estimates. Many respondents have expressed the need for a 'Unique patient identifier' (see page 157).

Some respondents recommended that 'Person identifier' be reported in accordance with the NHDD definition for all jurisdictions. An encrypted person identifier would be satisfactory, provided that the encryption is done in the same way each time.

Victoria has recommended that person identifiers be encrypted consistently across other minimum data sets where appropriate; this is already done by Victoria for the Admitted Patient Care and Elective Surgery Waiting Times minimum data sets. Victoria's encryption methodology for keeping a unique number across years could be a useful resource for other states and territories.

### Source of referral to public psychiatric hospital

Only 62% of respondents who provided a rating for the importance of this data element rated it as either important (43%) or highly important (19%), and 58% rated it as either useful (40%) or highly useful (18%). Nineteen per cent did not think the data element was important and 20% not useful. Another 19% were unsure of its importance and 23% of its usefulness.

It was suggested that although this data element is useful for some analysis, it would be more useful if it included a domain 'referral from general practitioner or local medical officer or similar'. Not all jurisdictions collect this data element. There are no definitions for the data domains and it is unclear how they have been used.

The feasibility of expanding this data element for collection for all hospital types could be further investigated.

Queensland commented that if 'Mode of admission' is revised then this data element should also be revised accordingly.

### Urgency of admission

Eighty-one per cent of respondents who provided a rating for the importance of this data element rated it as either important (43%) or highly important (38%), and 65% rated it as either useful (38%) or highly useful (28%). Seven per cent did not think the data element was important and 20% not useful. Another 12% were unsure of its importance and 15% of its usefulness.

It was noted that there are serious data quality issues in relation to this data element that need to be resolved. One respondent also commented that the NHDD is not clear on what should be coded for transferees from other hospitals. Apparently there is a variety of practices in the hospitals. An increased number of data domain values (for example, for obstetrics, newborns, transfers, chemotherapy, dialysis) may be useful. Western Australia has suggested that clearer NHDD definitions are certainly required for this data element, especially for the identification of cases where 'Not assigned' is expected. South Australia suggested that the data domain of 'Not assigned' should be re-labelled 'Not applicable'.

## Data element concepts

### Acute care episode for admitted patient

Eighty-three per cent of respondents who provided a rating for the importance of this data element concept rated it as either important (31%) or highly important (52%), and 80% rated it as either useful (38%) or highly useful (43%). Seven per cent did not think the data element concept was important and 13% not useful. Another 10% were unsure of its importance and 8% of its usefulness.

Most comments in relation to this data element concept noted that this information is already defined under the 'Care type' data element. It was suggested that this data element concept should be reconsidered along with 'Care type'.

### Admission

Eighty-eight per cent of respondents who provided a rating for the importance of this data element concept rated it as either important (32%) or highly important (56%), and 82% rated it as either useful (41%) or highly useful (41%). Only 5% did not think the data element concept was important and 10% not useful. Another 7% were unsure of its importance and 8% of its usefulness.

It was suggested that one of the major areas of work required for this NMDS is to define more consistently and accurately the boundaries between admitted overnight, same-day and non-admitted care. It was also noted that the criteria for what constitutes a legitimate admission need to be reviewed, and there should be clearer guidelines in the NHDD on what an admission is, rather than just references to other documents/publications. For emergency admissions, there need to be national

standards for when a patient is admitted and when a patient is not admitted (for example, following a presentation to the emergency department). The Department of Health and Ageing may be addressing this issue.

**Admitted patient**

Eighty-eight per cent of respondents who provided a rating for the importance of this data element concept rated it as either important (32%) or highly important (56%), and 82% rated it as either useful (36%) or highly useful (46%). Only 5% did not think the data element concept was important and 10% not useful. Another 7% were unsure of its importance and 8% of its usefulness.

Similar to the comments for 'Admission', it was suggested that one of the major areas of work required for this NMDS is to define more consistently and accurately the boundaries between admitted overnight, same-day and non-admitted care, as well as to investigate the boundary between boarders and admitted patients, particularly for infants. It was noted that there needs to be a more definitive (clinically based) boundary between admitted and non-admitted patients. It was suggested by one respondent that it would be more useful if the definition included identification of admission to a hospital bed as opposed to being in the emergency department for an extended period and classified as 'admitted' although actually discharged before a bed becomes available. This varies with local policy and some patients may actually only be in the emergency department 4 hours before they are classified as an admission even though they are discharged from the emergency department.

**Contracted hospital care**

Sixty per cent of respondents who provided a rating for the importance of this data element concept rated it as either important (38%) or highly important (23%), and 53% rated it as either useful (34%) or highly useful (18%). Ten per cent did not think the data element concept was important and 13% not useful. Another 30% were unsure of its importance and 34% of its usefulness.

Only one comment was received in relation to this data element concept, noting that the definition is not particularly useful.

**Diagnosis**

Ninety-three per cent of respondents who provided a rating for the importance of this data element concept rated it as either important (12%) or highly important (81%), and 93% rated it as either useful (18%) or highly useful (75%). Only 2% did not think the data element concept was important and 5% not useful.

There were no comments from respondents in relation to this data element concept.

**Episode of care**

Ninety per cent of respondents who provided a rating for the importance of this data element concept rated it as either important (17%) or highly important (73%), and 87% rated it as either useful (28%) or highly useful (59%). Only 2% did not think the

data element concept was important and 3% not useful. Another 7% were unsure of its importance and 10% of its usefulness.

The consistency of the episode of care as the counting unit was one of the major concerns raised. One respondent indicated that hospitals are still encountering problems as to when to close and re-open an episode of care for a patient. As discussed under 'Care type', it is believed that the definition of care types need to be refined and that this is one of the areas of the NMDS that requires a complete rethink and careful examination of the theory and application. It is believed that even though data for the data element 'Care type' have now been collected for several years we are still not close to having consistent data across jurisdictions.

It was noted that many concepts developed for the NMDS have been defined specifically for admitted care without recognition that these also have relevance to other areas of health care. The episode of care concept is a particular example, defined in the NHDD as: 'The period of admitted patient care between a formal or statistical admission and a formal or statistical separation, characterised by only one care type'. The concept is pivotal to the NMDS for Admitted Patient Care because it serves as the statistical unit that governs the collection and organisation of all data. Concepts such as 'Admission', 'Separation' and 'Care type' work as subordinate concepts, operating beneath the definition. Difficulties arise when attempts are made to extend these concepts and terms to health care provided in community settings because the restrictive nature of the definition (and its subordinate concepts) ties the use of such terms exclusively to 'admitted patient care'. However, episodes of health care may occur outside the walls of the hospital, and entail processes directly equivalent to the concepts of 'Admission', 'Separation' ('Discharge') and so forth. It has been suggested that concepts such as these need to be defined in such a way that is equally relevant to community settings as hospital ('admitted patient') settings. If the concept were renamed 'Episode of admitted patient care', some of these issues would be resolved.

## Hospital

Eighty-three per cent of respondents who provided a rating for the importance of this data element concept rated it as either important (31%) or highly important (52%), and 72% rated it as either useful (33%) or highly useful (38%). Only 5% did not think the data element concept was important and 8% not useful. Another 12% were unsure of its importance and 21% of its usefulness.

A number of comments suggested that this concept might need to be reviewed. It was suggested that what constitutes a hospital now is probably different to 10 years ago and therefore the definition may need to be reconsidered. Similarly it was suggested that the definition may need to be revised in light of the Federal Government's funding for a number of Multi-Purpose Service facilities. One respondent commented that this concept relies too much on state and territory legislation leading to comparability issues across jurisdictions.

Western Australia commented that it should be linked to a review of establishment types.

**Hospital boarder**

Fifty-nine per cent of respondents who provided a rating for the importance of this data element concept rated it as either important (22%) or highly important (37%), and 55% rated it as either useful (26%) or highly useful (29%). Seventeen per cent did not think the data element concept was important and 16% not useful. Another 24% were unsure of its importance and 29% of its usefulness.

A number of jurisdictions do not collect information on boarders and it is not within the scope of the NMDS. However, one respondent commented that it is unclear whether boarders are included in the NMDS and noted that the context might need further explanation.

**Hospital in the home care**

Seventy per cent of respondents who provided a rating for the importance of this data element concept rated it as either important (45%) or highly important (25%), and 47% rated it as either useful (34%) or highly useful (13%). Eight per cent did not think the data element concept was important and 18% not useful. Another 23% were unsure of its importance and 34% of its usefulness.

Generally comments related to the fact that data for hospital in the home (HITH) is not well recorded across jurisdictions, with some respondents commenting they are finding it difficult to collect. It was noted that the criteria in the guide for use need to be tightened so that HITH patients are being identified and data reported consistently. It is believed that the delineation between HITH and hospital care is blurred and confusing. Until there are clear national guidelines defining what a hospital in the home program is, it was thought that there is no point collecting data using this concept nationally.

**Live birth**

Seventy-eight per cent of respondents who provided a rating for the importance of this data element concept rated it as either important (27%) or highly important (51%), and 72% rated it as either useful (28%) or highly useful (44%). Twelve per cent did not think the data element concept was important and 13% not useful. Another 10% were unsure of its importance and 15% of its usefulness.

There were no comments from respondents in relation to this data element concept.

**Neonate**

Eighty-five per cent of respondents who provided a rating for the importance of this data element concept rated it as either important (29%) or highly important (56%), and 74% rated it as either useful (28%) or highly useful (46%). Seven per cent did not think the data element concept was important and 13% not useful. Another 7% were unsure of its importance and 13% of its usefulness.

One respondent commented that there is an inconsistency in the data element regarding whether the 28th day is included.

**Newborn qualification status**

Seventy-three per cent of respondents who provided a rating for the importance of this data element rated it as either important (30%) or highly important (43%), and 59% rated it as either useful (28%) or highly useful (31%). Thirteen per cent did not think the data element was important and 21% not useful. Another 15% were unsure of its importance and 21% of its usefulness.

There were a number of comments from respondents regarding this data element concept and the data element to which it relates, 'Number of qualified days for newborns', indicating that both may need to be modified. Detailed comments are provided under the data element.

**Organ procurement—posthumous**

Fifty-six per cent of respondents who provided a rating for the importance of this data element concept rated it as either important (33%) or highly important (23%), and 50% rated it as either useful (31%) or highly useful (19%). Thirteen per cent did not think the data element concept was important and 17% not useful. Another 31% were unsure of its importance and 33% of its usefulness.

No comments were received regarding any changes to this data element concept, however, it was noted that a number of states and territories do not collect this information. It was noted that most patient administration systems do not support the 'admission' of a dead person, and thus can not report posthumous organ procurement. There is a strong feeling in New South Wales and Australian Capital Territory hospitals that organ procurement should be in the scope of admitted patient activity as it is unclear how the hospital gets funding for this activity. While it could be argued that it is in the Casemix payment for the patient receiving the organ, it does not take into consideration that the recipient of the donor organ could be in an interstate hospital or in another Area Health Service. It seems funding may not flow to the hospital doing the organ procurement.

**Overnight stay patient**

Eighty-eight per cent of respondents who provided a rating for the importance of this data element concept rated it as either important (40%) or highly important (48%), and 84% rated it as either useful (39%) or highly useful (45%). Only 8% did not think the data element concept was important and/or useful. Another 5% were unsure of its importance and 8% of its usefulness.

One respondent commented that although the concept is not useful, the guide for use is.

**Patient**

Eighty-five per cent of respondents who provided a rating for the importance of this data element concept rated it as either important (37%) or highly important (49%), and 79% rated it as either useful (39%) or highly useful (39%). Only 5% did not think

the data element concept was important and 8% not useful. Another 10% were unsure of its importance and 13% of its usefulness.

A comment made in relation to this data element concept was that the definition is not very useful, but also that it is difficult to see how this can be improved. Another was that 'extended stay patients' (for example, awaiting aged care residential placement) could be regarded as residents, rather than patients. Queensland commented that terminology should be standard, patients and hospitals, residents and residential aged care facilities. So patients in hospitals cannot be categorised as residents.

**Same-day patient**

Ninety-three per cent of respondents who provided a rating for the importance of this data element concept rated it as either important (31%) or highly important (62%), and 90% rated it as either useful (40%) or highly useful (50%). Only 5% did not think the data element concept was important and 8% not useful.

It was noted that the definition for this data element concept is not very useful, but that it is difficult to see how this can be improved. It was suggested that the reference to procedure banding should be removed from the definition. There is also some concern about possible ambiguity regarding the 'not intended to be overnight' part of the definition.

It was noted that the continued inclusion of same-day patients within the admitted patient data creates special problems for the mental health field as it misrepresents some of the care provided. Same day admissions usually have a different meaning in mental health than in general health. In the latter case, there are well-defined procedural events associated with such admissions which are covered in the NHDD definitional criteria for 'Same-day patient'. Based on those criteria, it is clear that most same-day admissions in mental health do not meet the definition. From the mental health perspective, some same-day separations are better considered as a series of treatment events occurring during a period of ambulatory care. Typically, they involve daily attendance by consumers at a variety of day and group-based programs that could otherwise be provided in community settings.

It was suggested that the solution to the confounding effect of same-day patients in the mental health data has at least two components. First, better definition and agreement within the mental health service industry is required as to what events should be classed as genuine same-day admissions. This is outside the scope of the current review. The second aspect of the solution was suggested to entail data development and reporting. A clear distinction was suggested to differentiate intended same-day patients from those who were discharged on the same-day when the original intent was an overnight admission. The data element 'Intended length of hospital stay' within the Admitted Patient NMDS provides the potential for this. However, the data element may need to be further developed to split intended same-day patients into procedural and non-procedural, with the former confined to a limited set of events where the patient's attendance at the hospital was necessary from a safety and quality perspective. Work to develop an agreed list of mental

health-specific same-day procedural codes would be required. When developed, clarification could be made that only procedural same-day patients are to be counted within the Admitted Patient (Mental Health) Care NMDS, and non-procedural, intended same-day patients could be counted within the scope of the Community Mental Health Care NMDS.

These could alternatively be treated as data analysis issues.

### Separation

Ninety per cent of respondents who provided a rating for the importance of this data element concept rated it as either important (19%) or highly important (71%), and 90% rated it as either useful (31%) or highly useful (59%). Only 5% did not think the data element concept was important and 3% not useful. Another 5% were unsure of its importance and 8% of its usefulness.

One issue that was raised in relation to this data element concept is the limitations of separation-based counting for describing longer term care.

The concept of a 'statistical' separation is currently limited to a change in 'Care type' that terminates an episode within a hospital stay, or statistical discharge from leave. The 'long stay' issue derives from the separation-based definition of the NMDS. A significant proportion of patient care in designated mental health units is longer term care which remains invisible to the current NMDS approach. Similarly, when such patients do enter separation statistics, they carry with them substantial days of care (often many years) and distort average length of stay estimates. This issue can also be significant for other longer stay patients, including 'extended stay' patients awaiting aged care placement.

It was suggested that the concept of a 'statistical separation' should be extended to accommodate this group of patients whereby a NMDS record of the ordinary kind is generated, but is separately identified. The options identified for generating such a record are (1) every 12 months from initial admission, or (2) on a census date of 30 June.

It was suggested that the concept of 'statistical separation' be pursued with jurisdictions to address this problem in a systematic way, with particular attention to the issues of:

- quarterly or annual cycle;

- census date versus time since admission/ last statistical separation; and

- whether in fact a formal discharge/re-admission process should be used on a 12-month cycle, rather than a statistical separation.

# Proposed new data elements

There were clearly some concerns raised by respondents about the idea of introducing new data elements (or modifying existing data elements) into the NMDS including, for users, the lack of consistent time series data and, for collectors, changes

to systems which costs time, effort and money. It was noted that changes to the NMDS would require an impact statement to determine the full effect on the system. In fact, a business case is now required for changes to NMDSs. A few respondents indicated that changing the NMDS each year is problematic and there should be a couple of years of consolidation.

Another respondent suggested that it would be useful to do a stocktake of all data items collected around the states and territories in addition to the NMDS to determine if there are additional items that could be collected at no cost to augment the existing collection. Concern was also raised that there are too many data sets in separate existence across Australia which has led to much redundancy. The example given was that mental health data sets, aged care data sets, Home and Community Care Minimum Datasets, all collect information of patients who are also being collected in the NMDS from time to time, as they cross all boundaries of health care. It was suggested that minimum data sets could be merged into one central maxi data set.

Despite these concerns raised by a number of respondents, a number of new data elements (or suites of data elements) were suggested.

## Unique patient identifier

As discussed under the data element 'Person identifier', a number of respondents have expressed the limitations with the requirement that this data element is only required to be unique within an individual establishment or agency.

The need for a unique patient identifier or statistical linkage key that can be used across all hospitals in Australia has been expressed as a priority by a number of respondents, to:

- enable analysis of hospitalisations data on a patient basis rather than an episode basis, including re-admissions, and allow more accurate estimation of hospitalisation rates, that is, as people hospitalised per 100,000 population rather than as hospitalisations per 100,000 population;

- be able to track an individual's separations across different care types and analyse the whole hospital stay to enable true length of stay to be determined ;

- enable more accurate linkage with other data sets;

- enable costing of patients through the Australian health system.

As there are a number of processes currently under way to investigate the use of unique patient identifiers and statistical linkage keys, it is unlikely that data development work in this area will be pursued independently as a result of this evaluation. The Australian Health Ministers' Advisory Council (AHMAC) has requested that the National Health Information Management Group (NHIMG) consider how best to enable hospital morbidity unit record data to be linked to a range of other unit record data for the purpose of enabling high priority research and analysis to improve health outcomes and health service delivery. NHIMG has considered this request and has developed a range of recommendations that

AHMAC has considered and which will provide a framework for moving this work through some first steps. The first steps will probably include consultation with appropriate stakeholders, description of appropriate governance arrangements in consideration of all relevant confidentiality and privacy requirements, and the development of a nationally consistent approach to applying linkage keys.

Another process that is under way is HealthConnect which is the proposed national health information network to facilitate the safe collection, storage and exchange of consumer health information between authorised health care providers. The Federal Government, in partnership with the states and territories, is currently undertaking two years of research and development work to design a model for the network and to test its value and long-term sustainability prior to any government decision to proceed on a national basis. The network will provide for the creation and storage of electronic health records as well as other health information and has enormous potential to improve the flow of information across the health sector. Access to this information will be only available to authorised users and participation will be voluntary. An important part of the HealthConnect research and development work is to explore the range of tools available for reliable identification, including exploring options for a health key that could be used to identify individuals participating in HealthConnect. Work is also under way to look at the safeguards that would need to be in place to ensure individuals' privacy is not compromised through the use of such identifiers, including such measures as legislation and penalties for misuse. The relationship between NMDS collections and HealthConnect data is yet to be determined.

## Admission time, Separation time and Leave in hours and minutes

As discussed under the data elements 'Admission date', 'Admission time' and 'Total leave days' a number of respondents have identified the need to also record the time of admission and time of separation and the periods of leave in hours and minutes. The data elements, 'Admission date', 'Separation date' and 'Total leave days' would be more useful if the time of admission, the time of separation and hours of leave days were also reported. This would enable the distinction between lengths of stay of, for example, 4 hours, 22 hours (same-day), 22 hours (overnight).

This would provide more accurate information on length of stay as it would enable the calculation of length of stay in minutes. The current calculation is based on whole days which is not appropriate for same-day patients. Given the fact that same-day separations now account for around 50% of all admitted patient separations, the length of same-day separations could be usefully expressed in hours and minutes. Some jurisdictions do currently collect this more precise time information. For the national collection these jurisdictions have to round leave hours to days, resulting in some calculations of negative lengths of stay and causing data validation issues.

It has also been noted that it would be useful for emergency department work to know the actual admission time of admitted patient episodes of care. This would support future analysis of data quality issues associated with admission from an

emergency department. 'Admission time' is a data element in the NHDD, however it is not currently a data element specified in the NMDS for Admitted Patient Care.

Queensland does not support the addition of admission time, separation time, hours of leave etc. to the NMDS and has suggested that before this issue can even be considered all resource and cost/benefit issues would need to be discussed and addressed. Tasmania has also indicated that this is a significant change which will require a business case to properly assess the implications for all jurisdictions. Although Western Australia recognises that there will be costs involved, it is supportive of the recommendation. South Australia has previously suggested including length of leave and length of stay in hours/minutes as well as days to prevent queries on negative derived length of stays. As such, South Australia would be happy to include admission and separation time as well as leave hours/minutes in the future. The Australian Capital Territory is also supportive of the recommendation and believes it will be useful to determine whether two separations on one day are duplicates or not.

## Diagnosis onset type

'Diagnosis onset type' is a new data element introduced in the *National Health Data Dictionary* version 11, however, it is not as yet included in any NMDS. It has been proposed that it should become a new data element in the NMDS for Admitted Patient Care, and the collection method specifies that it is to be recorded and coded upon completion of an episode of admitted patient care. 'Diagnosis onset type' is defined as a qualifier for each coded diagnosis to indicate the onset and/or significance of the diagnosis to the episode of care, that is, primary condition or post-admit condition. The primary condition is:

- a condition present on admission such as the presenting problem, a comorbidity, chronic disease, disease status; in the case of neonates, the condition(s) present at birth;

- a previously existing condition not diagnosed until the current episode of care;

- in delivered obstetric cases, all conditions which arise from the beginning of labour to the end of second stage.

A post-admit condition is a condition that arises during the current episode of care and would not have been present on admission.

The relevant diagnosis type flag would be assigned to all ICD-10-AM disease codes recorded in the hospital morbidity system. It is believed that this data element will allow improved analysis of diagnostic information, especially in relation to patient safety and adverse event monitoring. It would not, however, facilitate identification of adverse events that occurred prior to the admission.

Strengthening the identification of adverse events was raised as an area for development as it is an issue that continues to receive considerable state and national attention. There could be several types of data changes that could facilitate this,

including this one, but also strengthened linkage between diagnoses and external causes in data collections and improved activity and place coding.

New South Wales and Western Australia raised concern over the possible cost of implementation and resource load required. Queensland and the Department of Health and Ageing both commented that this item needs further development and the Department would also like the data element trialed and evaluated prior to inclusion in the NMDS.

## Date of procedure

'Date of procedure' is a new data element introduced in the *National Health Data Dictionary* version 11, however, it is not as yet included in any NMDS. It has been proposed that it should become a new data element in the NMDS for Admitted Patient Care. 'Date of procedure' is defined as the date on which a procedure commenced during an inpatient episode of care and is required to provide information on the timing of the procedure in relation to the episode of care.

This data element may be useful for analysis of surgery occurring on the day of admission (rather than later). It may be that it would be usefully restricted to a subset of procedures, such as surgical and invasive medical procedures. Western Australia commented that staff already record 'Date of procedure' in the hospitals' theatre management systems and reporting to the morbidity system would duplicate their work. Queensland noted that it is not appropriate to allocate procedure dates to all procedures and that exclusion lists would need to be developed before inclusion in the NMDS.

## Data elements relating to intensive care

A number of respondents identified the need to include data elements that provide information on intensive care. Data elements to measure time in intensive care units (ICUs) (in hours), level of severity in intensive care as well as details on the outcomes of intensive care were suggested. The idea of including intensive care as a 'Care type' was also raised. A data element concept for defining intensive care units ('Intensive care unit') is already included in the NHDD. The feasibility of including other intensive care data elements in the NMDS needs to be investigated.

The Northern Territory has indicated in some hospitals coronary care, high dependency and intensive care patients are combined into one unit called 'Intensive care'. Therefore the allocation of an intensive care 'care type' would need to be well defined to take into account these combined intensive care units. Western Australia also noted that there may be issues with consistency of approaches in ICU hospitals and interfaces with ICU systems may be an issue.

The Northern Territory also noted that the data elements mentioned are already collected for the Australian and New Zealand Intensive Care Society (ANZICS) Adult Patient Database. This is Commonwealth and State Government funded and is

a comprehensive system, and there may not be any value in duplicating any of the data elements that are already collected and reported by it.

### Severity score for ICU

A data element for assessing the level of severity in intensive care was one of the data elements relating to intensive care suggested. Through the ANZICS Paediatric Database and Adult Patient Database information is collected on severity of illness for intensive care patients. Acute Physiology and Chronic Health Evaluation (APACHE) II is the predominant severity of illness scoring system used by ICUs in Australia. APACHE scores enable the categorisation of patient loads in terms of severity of illness and predicted mortality and are based on current physiological measurements of the patient (such as mean arterial pressure and heart rate), the patient's age and any previous health conditions (such as organ insufficiency or immunocompromised state). An increasing score is associated with an increasing risk of hospital death. The possibility of including such scores as a new data element in the NMDS may need to be investigated.

## Data elements relating to Diagnosis Related Groups

A number of new data elements were suggested for inclusion in the NMDS which can be derived from DRGs. As a NMDS is a *minimum* set of data elements agreed by the NHIMG for mandatory collection and reporting at a national level, data elements that can be easily derived from those already collected in the NMDS should not form part of the NMDS. For completeness, these data elements are discussed below.

### Service Related Groups

As discussed under the data element 'Major diagnostic category' a number of jurisdictions are now using Service Related Groups to recode the large number of DRGs into a handful of groups for analysis. However, this would not necessarily have to be a NMDS data element if it can be derived from the DRG and other data already in the NMDS.

### Hours of mechanical ventilation

Hours of mechanical ventilation refers to the number of hours a patient was attached to a mechanical ventilation device. It is used for grouping data to DRGs, however, if it is not present, invalid or is empty it will be imputed from the ICD-10-AM procedure codes 13882-01 *Management of continuous ventilatory support, > 24 and < 96 hours* or 13882-02 *Management of continuous ventilatory support, ≥ 96 hours.* Although this is not an NMDS item, the Institute has requested that states and territories provide this item in previous years, but no longer does so, as it is not collected by all jurisdictions and it can be imputed from ICD-10-AM procedure codes for grouping.

**Patient clinical complexity level**

Patient clinical complexity level is a one-digit field indicating the patient's clinical complexity level. It is a measure of the cumulative effect of a patient's complications and comorbidity, and is calculated for each episode. The value will be 0–4 for surgical patients and 0–3 for medical patients.

As this is a field which is an output of the AR-DRG grouper it would seem to be unnecessary to include this as a NMDS data element in its own right.

# Data elements relating to continuity of care

A number of respondents expressed the need to include data elements that would allow for the monitoring of continuity of care, particularly in relation to the acute/aged care or sub-acute interface. Suggestions were made for data elements to monitor re-admissions to hospital, to provide information on where patients are referred to from hospital, details of carer availability, and data elements for monitoring whether patients are ready for discharge and reasons for delay. A data element concept for transfers was also suggested as well as definitions for transitional care and convalescent care, however, such definitions may be better placed as data domains in the 'Care type' data element. The Northern Territory suggested that it may be helpful if some specific mental health continuity of care scenarios were considered for addition to this element. Western Australia commented that it may be difficult to collect some of these proposed elements at admission.

**Re-admissions or Unplanned re-admissions**

A number of respondents identified the need to be able to identify re-admissions or unplanned re-admissions which may relate to issues in the continuity (or outcomes) of care or to more accurately study particular conditions such as asthma.

It was suggested that a data element for 'Unplanned re-admissions' could describe problems in continuity of care when patients of hospitals are discharged and then re-admitted because of poor arrangement of post-discharge services. This type of data element may enable monitoring of re-admissions that could have been prevented with improved hospital discharge planning and/or access to community or hospital 'transitional' or 'post-acute' services.

A few respondents also suggested that it would be useful to be able to distinguish clearly between admission for a newly experienced acute illness or injury and a secondary admission for a condition that was treated in a previous admission, for example, re-admission for asthma in 28 days.

It was noted that a patient identifier that is unique across all hospitals in Australia may be useful for monitoring re-admissions (see discussion of 'Unique patient identifier', page 157).

### Referral to

A patient may be discharged home/to their usual residence but may be concurrently referred to Home and Community Care, rehabilitation, outpatient clinics, etc. It is believed that hospitals routinely collect this information in their discharge plans, however, the availability of this information at the national level will need to be assessed.

### Carer availability

It was suggested that a data element for carer availability could allow the analysis of carer availability in relation to discharge destination, length of stay, etc.

### Ready for discharge date and Reason for delay

For some patients, including those waiting for a nursing home bed or suitable sub-acute services, there could be an appreciable difference between the date on which they are judged 'ready to go home' as opposed to the date they are actually discharged or transferred to another facility. Therefore it was suggested a data element such as 'ready for discharge date' and, to complement this, a 'reason for delay' data element would be useful for monitoring this issue. The Department of Health and Ageing has indicated that these are complex data elements and they would need to be developed with great care.

In a related suggestion, it was noted that it may be useful to develop a mechanism for linking relevant diagnostic information, for example, using the ICD-10-AM code Z75.1 *Person awaiting admission to adequate facility elsewhere* to Aged Care Assessment Team data to indicate whether persons waiting for aged care have actually been assessed and found to be in need of such care. A count of patient days in conjunction with this ICD-10-AM code may provide information on the number of days a person was waiting for placement.

It has already been recognised that the NMDS for Admitted Patient Care does not currently include data that can be accurately used to quantify or characterise the provision of care to 'extended stay' patients in acute care hospitals, possibly occurring due to unavailability of aged care beds or other forms of non-hospital care. Identification and characterisation of this type of use of acute care beds and/or hospitals could inform policy development in relation to the provision of residential aged care services, or community-based services, and in relation to the management of acute care admitted patient services.

Data are required to enable identification of such 'extended stay' hospitalisations and for characterisation of their length of stay, diagnoses recorded and the types of care provided. Data that could be used for identification of hospitalisations of patients transferred from hospitals to aged care homes, either temporarily or permanently, and vice versa have been identified as of use.

The Institute has undertaken some preliminary work in consultation with the Department of Health and Ageing and the states and territories through the NHDC, confirming that the currently collected data cannot be used to identify and

characterise the 'extended stay' hospitalisations, and clarifying some of the issues to be addressed. It is likely that a data element to identify patients who have been assessed as requiring high- or low-level care in a residential aged care facility, or other non-hospital care, will be developed. In addition, the data elements 'Mode of admission' and 'Mode of separation' may be revised so they can be used more accurately to identify transfers between hospitals and aged care homes and other non-hospital settings.

## Data elements for the Hospital Casemix Protocol

It was suggested that these all be included in the NMDS. This would ensure its better alignment with national standards. Queensland suggested that these data elements should be proposed for NHDD before they can be included in the NMDS.

## Other specific-purpose data elements

### Patient weight and patient height

Patient weight and patient height have been suggested as proposed new data elements for the NMDS. Weight and height are used in the calculation of Body Mass Index (BMI). BMI is calculated as a person's weight (body mass) relative to height. It is a measure of body mass corrected for height which is used to assess the extent of weight deficit or excess. In sedentary populations, BMI also provides an imprecise but practical indicator of the level of body fat. BMI is used as an indicator of both underweight and overweight and obesity in sedentary Western adults. On a population basis there is a strong association between BMI and health risk. 'Adult body mass index', 'Adult height—measured', 'Adult height—self-reported', 'Adult weight—measured', and 'Adult weight—self-reported' are already included as data elements in the NHDD. The relevance of including such data elements in the NMDS for Admitted Patient Care would need to be assessed, and whether it is appropriate and cost effective for hospitals to collect this for all acute episodes.

### Industry, occupation and employment status

The National Occupational Health and Safety (OHS) Strategy endorsed by the Workplace Relations Ministers' Council in May 2002 contains five occupational health and safety strategies and nine Action Plans to achieve the OHS objectives. Under the Data Action and Disease Action Plans, the National Occupational Health and Safety Commission is required to examine data sets such as the NHMD to assess their ability to provide information on occupational injury and disease in Australia. Consultations with the Commission stakeholders suggested that the NHMD could be improved for OHS purposes by the inclusion of data elements for industry, occupation and employment status. This would allow the NHMD to effectively complement other OHS databases in use at the Commission.

The Commission has indicated that it will prepare a business case for the National Health Information Management Group to include 'Industry of person', 'Occupation of person' and 'Employment status' in the NMDS.

## Other data elements requested for the National Hospital Morbidity Database by the Institute

### State record identifier

Although this is not a NMDS data element, the Institute requests that states and territories provide a unique state record identifier for each record to enable easier communication about individual records and to allow quicker updates of records from states/territories without total data re-supply. The state record identifier needs to be meaningful and stable in each jurisdiction's database and unique in the state/territory for this purpose.

### Hospital geographical indicator

The Institute also requests a hospital geographical indicator to identify and enable analyses on the level of access to hospital services. States and territories are requested to provide the indicator in the Accessibility/Remoteness Index of Australia and/or the ABS Remoteness Area format. The Department of Health and Ageing has also suggested the use of global positioning system coordinates as a measure of location. These coordinates provide raw data that can be classified into any remoteness index/format. Western Australia will have all hospitals geo-coded soon.

### Postcode

In addition to the reporting of SLA for a patient's area of usual residence, the Institute requests that states and territories report postcode as a separate data element. The year of postcode to be reported is the one that applies to the year at the start of the collection period, that is, 2001 for 2001–02 morbidity data.

Postcode has been recognised as a useful data element for improving the accuracy of data linkage, and for analysis that relates to geographical areas defined by postcodes.

The Department of Health and Ageing has also suggested that 'Hospital postcode' be added as an establishment data element to the NMDS. This would enable mapping of hospital service provision alongside aged care service provision in geographically meaningful units.

### Morphology of neoplasms codes

As some states/territories are already collecting this information as part of their morbidity collection, states and territories are invited to include this as optional codes in the National Hospital Morbidity Database. The inclusion of these codes may enable an indication of severity of blood and haematopoietic neoplasms, for example, for development of AR-DRGs. Morphology codes are to be supplied as seven

characters—the first four digits preceded by the letter 'M' and the fourth and fifth digits separated by a '/', for example, M8120/0.